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10/807,774	03/23/2004	Kikuo Maeda	KOY-0035	4282

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CANTOR COLBURN, LLP
20 Church Street
22nd Floor
Hartford, CT 06103

EXAMINER	
CROWELL, ANNA M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,774	MAEDA ET AL.	
	Examiner	Art Unit	
	Michelle Crowell	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) *12,13 and 20-39* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 14-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 12-13 and 20-21 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on March 6, 2008.

2. Applicant's election with traverse of Species I in the reply filed on March 6, 2008 is acknowledged. The traversal is on the ground(s) that the search and examination of the entire application would not place a serious burden on the Examiner. This is not found persuasive because the search and examination of the entire application would place a serious burden on the Examiner since the search required for the features of the elected species is not co-extensive with the search required for the features of the non-elected species.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 6-7, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukuda et al. (JP 56-005975A).

Referring to the abstract and Drawing 1, Fukuda et al. discloses a thin film

forming apparatus comprising: a first electrode 9 having a first discharge surface and a second electrode 10 having a second discharge surface, the first discharge surface facing opposite to the second discharge surface to form a discharge space; a gas supply unit 20 for supplying a gas including a thin film formation gas to the discharge space; a power source 11 for discharging and activating the gas by applying a high frequency electric field across the discharge space; and a film transporting mechanism 13 for transporting a protecting film for preventing at least one of the first electrode and the second electrode from being exposed to the activated gas, wherein a thin film is formed by exposing a substrate 12 to the activated gas and, the protecting film is transported in contact with at least one of the first discharge surface and the second discharge surface and with at least a part of a surface other than the discharge surface which continues to the discharge surface.

With respect to claim 2, the thin film forming apparatus of Fukuda et al. further includes wherein the film transporting mechanism 13 transports the protecting film, in contact with the discharge surface of the second electrode and with at least a part of the surface other than the discharge surface, which continues to the discharge surface second electrode and with at least a part of the surface other than the discharge surface, which continues to the discharge surface. (Drawing 1).

With respect to claim 6, the thin film forming apparatus of Fukuda et al. further comprising a substrate transporting mechanism 12 for transporting the substrate in contact with the discharge surface of the first electrode 9 (Drawing 1).

With respect to claim 7, the thin film forming apparatus of Fukuda et al. further includes wherein the substrate transporting mechanism 12 transports the substrate in a state in which the substrate contacts the discharge surface of the first electrode, after the substrate transporting mechanism makes the substrate contact the surface other than the discharge surface, which continues to the discharge surface of the first electrode (Drawing 1).

With respect to claim 19, the thin film forming apparatus of Fukuda et al. further includes wherein a width of the protecting film is set to be wider than the discharge space (Drawing 1).

5. Claims 1-3 and 19 are rejected under 35 U.S.C. 102(a) as being anticipated by Oishi et al. (J.P. 2003229299A).

Referring to Drawing 2 and paragraphs [0069]-[0078], Oishi et al. discloses a thin film forming apparatus comprising: a first electrode 3 having a first discharge surface and a second electrode 2 having a second discharge surface, the first discharge surface facing opposite to the second discharge surface to form a discharge space (par.[0077]-[0078]); a gas supply unit for supplying a gas including a thin film formation gas to the discharge space (par.[0078]); a power source 5 for discharging and activating the gas by applying a high frequency electric field across the discharge space (par.[0078]); and a film transporting mechanism 4 for transporting a protecting film for preventing at least one of the first electrode and the second electrode from being exposed to the activated gas, wherein a thin film is formed by exposing a substrate 1 to the activated gas and, the

protecting film is transported in contact with at least one of the first discharge surface and the second discharge surface and with at least a part of a surface other than the discharge surface which continues to the discharge surface (par.[0078]).

With respect to claim 2, the thin film forming apparatus of Oishi et al. further includes wherein the film transporting mechanism 4 transports the protecting film, in contact with the discharge surface of the second electrode and with at least a part of the surface other than the discharge surface, which continues to the discharge surface second electrode and with at least a part of the surface other than the discharge surface, which continues to the discharge surface. (Drawing 2).

With respect to claim 3, the thin film forming apparatus of Oishi et al. further includes wherein the first electrode 3 and the second electrode 2 generate the high frequency electric field in the discharge space under an atmospheric pressure or a pressure near to the atmospheric pressure (par.[0076]).

With respect to claim 19, the thin film forming apparatus of Fukuda et al. further includes wherein a width of the protecting film is set to be wider than the discharge space (Drawing 2).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-3, 6-7, 10-11, 14, 16 and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (J.P. 2002-339075) in view of Fukuda et al. (JP 56-005975A) or Oishi et al. (J.P. 2003229299A).

Referring to Drawing 1 and paragraphs [0025]-[0027], Murakami et al. discloses a thin film forming apparatus comprising: a first electrode 25 having a first discharge surface and a second electrode 24 having a second discharge surface, the first discharge surface facing opposite to the second discharge surface to form a discharge space (par.[0027); a gas supply unit 30a-30k for supplying a gas including a thin film formation gas to the discharge space (par.[0027]); and a power source 80 for discharging and activating the gas by applying a high frequency electric field across the discharge space (par.[0027]); and wherein a thin film is formed by exposing a substrate F to the activated gas (par.[0027]).

Murakami et al. fails to teach a film transporting mechanism for transporting a protecting film for preventing at least one of the first electrode and the second electrode from being exposed to the activated gas

Referring to the abstract of Fukuda et al. or paragraph [0078] of Oishi et al., Fukuda et al. or Oishi et al. teaches a thin film forming apparatus using a film transporting mechanism (Fukuda et al.-13, Oishi et al.-4) for transporting a protecting film for preventing at least one of the first electrode and the second electrode from being exposed to the activated gas and prevent the thin film from pollution. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least one of the first electrode and the second electrode of Murakami et al. with a film transporting mechanism as taught by Fukuda et al. or Oishi et al. in order to prevent the thin film from pollution.

With respect to claim 2, the thin film forming apparatus of Murakami et al. in view of Fukuda et al. or Oishi et al. further includes wherein the film transporting mechanism (Fukuda et al.-13, Oishi et al.-4) transports the protecting film, in contact with the discharge surface of the second electrode and with at least a part of the surface other than the discharge surface, which continues to the discharge surface second electrode and with at least a part of the surface other than the discharge surface, which continues to the discharge surface. (Fukuda et al.-Drawing 1, Oishi et al.-Drawing 2).

With respect to claim 3, the thin film forming apparatus of Murakami et al. further includes wherein the first electrode 25 and the second electrode 24 generate the high frequency electric field in the discharge space under an atmospheric pressure or a

pressure near to the atmospheric pressure (abstract).

With respect to claim 6, the thin film forming apparatus of Murakami et al. further comprising a substrate transporting mechanism 21, 22 for transporting the substrate in contact with the discharge surface of the first electrode 25 (Drawing 1).

With respect to claim 7, the thin film forming apparatus of Murakami et al. further includes wherein the substrate transporting mechanism 21, 22 transports the substrate in a state in which the substrate contacts the discharge surface of the first electrode 25, after the substrate transporting mechanism makes the substrate contact the surface other than the discharge surface, which continues to the discharge surface of the first electrode (Drawing 1).

With respect to claim 10, the thin film forming apparatus of Murakami et al. wherein the second electrode 24 is formed of a plurality of small electrodes (Murakami et al.-Drawings 1 & 2); and with respect to the film transporting mechanism is provided to each of the small electrodes, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least one of the each of the small electrodes of Murakami et al. with a film transporting mechanism as taught by Fukuda et al. or Oishi et al. in order to prevent the thin film from pollution (abstract of Fukuda et al. or paragraph [0078] of Oishi et al.).

With respect to claim 11, the thin film forming apparatus of Murakami et al. wherein the small electrodes 24 are fixed (Murakami et al.-Drawings 1 & 2); and with respect to the film transporting mechanisms transport the protecting films while rubbing the protecting films against the surfaces of the small electrodes, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least one of the each of the small electrodes of Murakami et al. with a film transporting mechanism as taught by Fukuda et al. or Oishi et al. in order to prevent the thin film from pollution (abstract of Fukuda et al. or paragraph [0078] of Oishi et al.).

With respect to claim 14, the thin film forming apparatus of Murakami et al., wherein the gas supply unit 30a-30k is disposed so as to supply the gas to the discharge space through a flow path formed as an interval between a first small electrode among the plurality of the small electrodes and a second small electrode adjoining to the first small electrode (Murakami et al.-Drawings 1 & 2, par.[0027]); and with respect to the film transporting mechanisms of each of the first small electrode and the second small electrode transports the protecting films, in contact with a surface of one of the small electrodes forming the flow path, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least one of the each of the small electrodes of Murakami et al. with a film transporting mechanism as taught by Fukuda et al. or Oishi et al. in order to prevent the thin film from pollution (abstract of Fukuda et al. or paragraph [0078] of Oishi et al.).

With respect to claim16, the thin film forming apparatus of Murakami et al. in view of Fukuda et al. or Oishi et al. further includes wherein the film transporting mechanism of each of the first small electrode and the second small electrode transports the protecting film to the surface of the small electrode forming the flow path, after the film transporting mechanism contacts the protecting film with at least a part of the gas supply unit. It should be noted that it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least one of the each of the small electrodes of Murakami et al. with a film transporting mechanism as taught by Fukuda et al. or Oishi et al. in order to prevent the thin film from pollution (abstract of Fukuda et al. or paragraph [0078] of Oishi et al.).

With respect to claim 19, the thin film forming apparatus of Murakami et al. in view of Fukuda et al. or Oishi et al. further includes wherein a width of the protecting film is set to be wider than the discharge space (Fukuda et al.-Drawing 1, Oishi et al.-Drawing 2).

9. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (J.P. 2002-339075) in view of Fukuda et al. (JP 56-005975A) or Oishi et al. (J.P. 2003229299A) as applied to claims 1-3, 6-7, 10-11, 14, 16 and 19 above, and further in view of Achtner et al. (U.S. 5,652,022).

The teachings of Murakami et al. in view of Fukuda et al. or Oishi et al. have been discussed above.

Murakami et al. in view of Fukuda et al. or Oishi et al. fail to teach a heating equipment for heating the protecting film.

Referring to Figure 1 and column 2, lines 10-42, Achtner et al. teaches a thin film forming apparatus wherein a heating equipment for heating the protecting film is used to prevent undesired film from accumulating on the protecting film. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the apparatus of Murakami et al. in view of Fukuda et al. or Oishi et al. with a heating equipment for heating the protecting film as taught by Achtner et al. since this would prevent undesired film from accumulating on the protecting film and hence prevent contamination of the substrate.

10. Claims 8-9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (J.P. 2002-339075) in view of Fukuda et al. (JP 56-005975A) or Oishi et al. (J.P. 2003229299A) as applied to claims 1-3, 6-7, 10-11, 14, 16 and 19 above, and further in view of Nakamura et al. (U.S. 6,489,585).

The teachings of Murakami et al. in view of Fukuda et al. or Oishi et al. have been discussed above.

Murakami et al. in view of Fukuda et al. or Oishi et al. fail to teach the continuous corner part of second electrode is shaped in an arc and second electrode has a curved convex surface shape.

Referring to Figure 2A &2B and column 6, lines 36-59, Nakamura et al. teaches a thin film forming apparatus wherein teach the continuous corner part of second electrode is shaped in an arc and second electrode has a curved convex surface shape since it is an

alternate and equivalent shape used to process a continuous web substrate. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the shape of the second electrode of Murakami et al. in view of Fukuda et al. or Oishi et al. with the continuous corner part of second electrode shaped in an arc and second electrode having a curved convex surface shape as taught by Nakamura et al. shape since it is an alternate and equivalent shape used to process a continuous web substrate. In addition, the shape of the claimed second electrode was considered a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular shape of the claimed second electrode was significant.

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (J.P. 2002-339075) in view of Fukuda et al. (JP 56-005975A) or Oishi et al. (J.P. 2003229299A) as applied to claims 1-3, 6-7, 10-11, 14, 16 and 19 above, and further in view of Fukuda et al. (U.S. 6,759,100).

The teachings of Murakami et al. in view of Fukuda et al. or Oishi et al. have been discussed above.

Murakami et al. in view of Fukuda et al. or Oishi et al. fail to teach a wherein a high frequency electric field is formed by superposing a first high frequency electric field by the first electrode and the second high frequency electric field by the second electrode; a frequency $\omega 2$ of the second high frequency electric field is higher than a frequency $\omega 1$ of the first high frequency electric field; and a relation among an electric field intensity Vl of the first high frequency electric field, an electric field intensity V2 of

the second high frequency electric field and a discharge start electric field intensity IV satisfies an inequality Vl >=IV > V2 or an inequality Vl > IV >= V2.

Referring to Figure 2 and column 9, line 34-column 10, line 13, Fukuda et al. teaches a thin film forming apparatus wherein a high frequency electric field 41 is formed by superposing a first high frequency electric field by the first electrode 35 and the second high frequency electric field 42 by the second electrode 36; a frequency ω2 of the second high frequency electric field is higher than a frequency ω1 of the first high frequency electric field; and a relation among an electric field intensity Vl of the first high frequency electric field, an electric field intensity V2 of the second high frequency electric field and a discharge start electric field intensity IV satisfies an inequality Vl >=IV > V2 or an inequality Vl > IV >= V2 since this would generate a plasma with high density necessary to form a layer with high quality. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify high frequency electric field of Murakami et al. in view of Fukuda et al. or Oishi et al. with first and second high frequency electric field as taught by Fukuda et al. since this would generate a plasma with high density necessary to form a layer with high quality.

12. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (J.P. 2002-339075) in view of Fukuda et al. (JP 56-005975A) or Oishi et al. (J.P. 2003229299A) as applied to claims 1-3, 6-7, 10-11, 14, 16 and 19 above, and further in view of Sagawa (J.P. 63-134677A).

The teachings of Murakami et al. in view of Fukuda et al. or Oishi et al. have been discussed above.

Murakami et al. in view of Fukuda et al. or Oishi et al. fail to teach the protecting film is made from polyester.

Referring to the abstract, Sagawa teaches a thin film forming apparatus wherein the protecting film is made from polyester to prevent residues from forming on the substrate. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the protecting film of Murakami et al. in view of Fukuda et al. or Oishi et al. to be made from polyester as taught by Sagawa since it is a material that prevents residues from forming on the substrate.

Double Patenting

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1-3, 17, and 19 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 14-16, and 29-31 of U.S.

Patent No. 6,759,100 in view of Fukuda et al. (JP 56-005975A) or Oishi et al. (J.P. 2003229299A).

Referring to claims 1-3, 14-16, and 29-31, U.S. Patent No. 6,759,100 discloses a thin film forming apparatus comprising: a first electrode 35 having a first discharge surface and a second electrode 36 having a second discharge surface, the first discharge surface facing opposite to the second discharge surface to form a discharge space (claims 2, 15, 30); a gas supply unit 50 for supplying a gas including a thin film formation gas to the discharge space (claims 1, 14, 29); and a power source 41 for discharging and activating the gas by applying a high frequency electric field across the discharge space (claims 1, 14, 29); and wherein a thin film is formed by exposing a substrate F to the activated gas (claims 1, 14, 29).

U.S. Patent No. 6,759,100 fails to teach a film transporting mechanism for transporting a protecting film for preventing at least one of the first electrode and the second electrode from being exposed to the activated gas

Referring to the abstract of Fukuda et al. or paragraph [0078] of Oishi et al., Fukuda et al. or Oishi et al. teaches a thin film forming apparatus using a film transporting mechanism (Fukuda et al.-13, Oishi et al.-4) for transporting a protecting film for preventing at least one of the first electrode and the second electrode from being exposed to the activated gas and prevent the thin film from pollution. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least one of the first electrode and the second electrode of U.S. 6,759,100 with a film transporting mechanism as taught by Fukuda et al. or Oishi et al. in order to prevent the thin film from pollution.

With respect to claim 2, the thin film forming apparatus of U.S. Patent No. 6,759,100 in view of Fukuda et al. or Oishi et al. further includes wherein the film transporting mechanism (Fukuda et al.-13, Oishi et al.-4) transports the protecting film, in contact with the discharge surface of the second electrode and with at least a part of the surface other than the discharge surface, which continues to the discharge surface second electrode and with at least a part of the surface other than the discharge surface, which continues to the discharge surface. (Fukuda et al.-Drawing 1, Oishi et al.-Drawing 2).

With respect to claim 3, the thin film forming apparatus of U.S. Patent No. 6,759,100 further includes wherein the first electrode 35 and the second electrode 36 generate the high frequency electric field in the discharge space under an atmospheric pressure or a pressure near to the atmospheric pressure (claims 1, 14, 29).

With respect to claim 17, U.S. 6,759,100 discloses a thin film forming apparatus wherein the high frequency electric field is formed by superposing a first high frequency electric field by the first electrode and the second high frequency electric field by the second electrode; a frequency ω2 of the second high frequency electric field is higher than a frequency ω1 of the first high frequency electric field; and a relation among an electric field intensity Vl of the first high frequency electric field, an electric field intensity V2 of the second high frequency electric field and a discharge start electric field intensity IV satisfies an inequality Vl >=IV > V2 or an inequality Vl > IV >= V2 (claims 1, 14, 29).

With respect to claim 19, the thin film forming apparatus of U.S. 6,759,100 in

view of Fukuda et al. or Oishi et al. further includes wherein a width of the protecting film is set to be wider than the discharge space (Fukuda et al.-Drawing 1, Oishi et al.-Drawing 2).

15. Claims 1-3, 17, and 19 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 7,166,335 in view of Fukuda et al. (JP 56-005975A) or Oishi et al. (J.P. 2003229299A).

Referring to claims 1-3, U.S. Patent No. 7,166,335 discloses a thin film forming apparatus comprising: a first electrode 35 having a first discharge surface and a second electrode 36 having a second discharge surface, the first discharge surface facing opposite to the second discharge surface to form a discharge space (claim 2); a gas supply unit 50 for supplying a gas including a thin film formation gas to the discharge space (claim 1); and a power source 41 for discharging and activating the gas by applying a high frequency electric field across the discharge space (claim 1); and wherein a thin film is formed by exposing a substrate F to the activated gas (claim 1).

U.S. Patent No. 7,166,335 fails to teach a film transporting mechanism for transporting a protecting film for preventing at least one of the first electrode and the second electrode from being exposed to the activated gas

Referring to the abstract of Fukuda et al. or paragraph [0078] of Oishi et al., Fukuda et al. or Oishi et al. teaches a thin film forming apparatus using a film transporting mechanism (Fukuda et al.-13, Oishi et al.-4) for transporting a protecting film for preventing at least one of the first electrode and the second electrode from being exposed to the activated gas and prevent the thin film from pollution. Thus, it would

have been obvious to one of ordinary skill in the art at the time of the invention to provide at least one of the first electrode and the second electrode of U.S. 7,166,335 with a film transporting mechanism as taught by Fukuda et al. or Oishi et al. in order to prevent the thin film from pollution.

With respect to claim 2, the thin film forming apparatus of U.S. 7,166,335 in view of Fukuda et al. or Oishi et al. further includes wherein the film transporting mechanism (Fukuda et al.-13, Oishi et al.-4) transports the protecting film, in contact with the discharge surface of the second electrode and with at least a part of the surface other than the discharge surface, which continues to the discharge surface second electrode and with at least a part of the surface other than the discharge surface, which continues to the discharge surface. (Fukuda et al.-Drawing 1, Oishi et al.-Drawing 2).

With respect to claim 3, the thin film forming apparatus of U.S. 7,166,335 further includes wherein the first electrode 35 and the second electrode 36 generate the high frequency electric field in the discharge space under an atmospheric pressure or a pressure near to the atmospheric pressure (claim 1).

With respect to claim 17, U.S. 7,166,335 discloses a thin film forming apparatus wherein the high frequency electric field is formed by superposing a first high frequency electric field by the first electrode and the second high frequency electric field by the second electrode; a frequency $\omega 2$ of the second high frequency electric field is higher than a frequency $\omega 1$ of the first high frequency electric field; and a relation among an electric field intensity Vl of the first high frequency electric field, an electric field

intensity V2 of the second high frequency electric field and a discharge start electric field intensity IV satisfies an inequality Vl >=IV > V2 or an inequality Vl > IV >= V2 (claim 1).

With respect to claim 19, the thin film forming apparatus of U.S.7,166,335 in view of Fukuda et al. or Oishi et al. further includes wherein a width of the protecting film is set to be wider than the discharge space (Fukuda et al.-Drawing 1, Oishi et al.-Drawing 2).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sensui et al.'525 and Miyagi'376 teach a film transporting mechanism for transporting a protecting film.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Crowell whose telephone number is (571)272-1432. The examiner can normally be reached on M-Th (9:30 -6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Michelle Crowell/
Examiner, Art Unit 1792

/Parviz Hassanzadeh/
Supervisory Patent Examiner, Art Unit 1792